




INSTANT GRAPHIC  
PULSE PRESENTATION FOR  
ADVANCED INSTRUMENTATION  
BUSINESS EQUIPMENT AND  
COMMUNICATION FACSIMILE

Alden Research Center   
WESTBORO, MASS. 01581  
617/366-4467

M.T.S. CONFERENCE  
JUNE, SAN DIEGO

Our oceanographic capabilities and instruments will be on display at the Marine Technology Society Conference beginning June 5 through 7.

Alden and our subsidiary organization, Ocean Sonics, will be present at our combined booth #166. We would like to extend an invitation to you to stop by to discuss your instrumentation requirements and your graphic recording needs.

Sincerely,

ALDEN ELECTRONIC & IMPULSE  
RECORDING EQUIPMENT CO. INC.

A handwritten signature in cursive script that reads "Francis R. Germain".

Francis R. Germain, Manager  
Marine Instrument Division

FRG/jef

# OCEAN SONICS INC

OCEANOGRAPHIC INSTRUMENTATION & DISPLAY



125 LOMITA STREET  
EL SEGUNDO, CALIFORNIA  
90245  
TELEPHONE: (213) 322-6881

subsidiary of

**ALDEN**  
ELECTRONIC

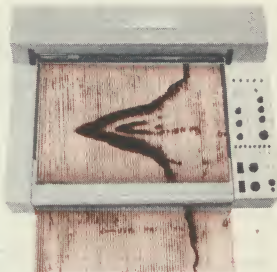
& IMPULSE RECORDING EQUIPMENT CO. INC. WESTBORO, MASS 01581

## INSTRUMENT DATA SHEET

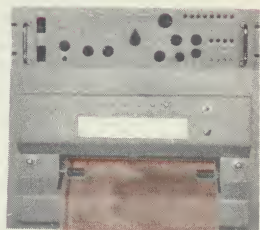
## OCEANOGRAPHY

Ocean Sonics, newly formed subsidiary of Alden is devoted to excellence in Oceanographic Instrumentation—offering modern reliable designs in standard sonar recorders and associated sonar instruments. Additionally, Ocean Sonics builds special customer systems utilizing standard tested components.

### RECORDING SYSTEMS



OSR-19



OSR-11

The **OSR-19** is a 19 inch solid state oceanographic recorder with extensive use of commercial integrated circuits providing a truly up-to-date version of the time-tested Alfax paper recording process with its advantages of color, stability, cleanliness, simplicity, and wide dynamic range of printing tone shades. The OSR-19 model is the basic recorder which can be combined with the variety of transducers such as the sparker, popper, thumper, and boomer for profile studies. The OSRT-19 model includes an integral sonar transceiver with programmer (has features as described under ESRT-66).

New features: **Electronically Controlled** for flexibility, variable cycle programming, permitting separation and collation of desired data from strong interfering signals such as surface reflections, multiple echoes, scattering layers etc; wide range of scanning rates from 20 to 2000 fathoms with metric scales available; four chart advance rates from 50 to 250 lines to the inch with step paper feeds for program cycle length being variable for record integration. The frequency response of the OSR series recorders is from DC to 50 KHz  $\pm 2$  db. Predecessor GDR 19 is available.

The **OSR-11** is a solid state oceanographic recording instrument which has the same operating characteristics as the OSR-19 but with scan rates from 10 fathoms to 1000 fathoms across 11" of chart paper and can be mounted in a 19" instrument rack or a small mobile console for small craft or for deep submersible applications where space requirements are at a premium. The four (4) paper feed chart advance rates are from 50 to 250 lines to the inch with step paper feeds for program cycle length being variable for record integration. Frequency responses for signal processing from DC to 50 KHz. The OSR-11 is the basic 11" recorder with associated operating controls. Combined with a programmer it becomes OSR-11P or combined with the programmer/transceiver becomes an OSR-11T with features as described under ESRT-66. If power requirements are limited, the OSR-11 series recorders can be modified to operate off to battery power supplies thus lending this unit for complete mobile survey applications.

### TRANSCEIVERS



ESRT-6



ESRT-66

The **ESRT-6 Precision Sonar Transceiver** with a transducer and a companion graphic recorder such as the OSR-19 or OSR-11 forms a precision echo sounding system for precision bathymetry and Oceanographic surveys. The ESRT-6 provides selection of transmitting power in 8 discrete steps from 400 to 1600 watts of power. The output stage is overload protected and transistors will not be damaged in case of sudden changes in load. The design load impedances are 100 to 400 ohms with other matching impedances available upon request. Standard operating frequency of this unit is 12 KHz  $\pm 100$  Hz with frequencies from 1 KHz to 30 KHz available upon request. Pulse length also is electronically controlled from 80 microseconds (1 cycle) to .4 seconds. The receiver portion is variable with a maximum gain of 120 db with output impedances of 500 ohms. Bandwidth varies automatically to match the pulse length. Overall sensitivity of the receiver portion is .5 microvolts to 3 microvolts according to the bandwidth (pulse length) with a headphone output converted to 2 KHz for adequate audio hearing.

The **ESRT-66** is a **Precision Sonar Transceiver** combining the features found in the ESRT-6 but with the addition of an integrated programmer. The programmer permits separation and collation of desired data from strong interfering signals such as surface reflections, multiple echoes, and scattering layers, etc. The unit is all solid state and has automatic switching, gating, and variable cycle length up to 8 positions (or multiple of any interval combination up to 8). The transmitting and receiving characteristics are the same as the ESRT-6.

### TRANSPONDERS



XPD-1

The **XPD-1** is a transponder with self-contained power supply and is designed to be frequency interrogate. Operating depth—0 to 5000 feet, between temperature ranges of  $-2^{\circ}$  to  $+35^{\circ}$  C. The life factor against corrosion failure is approximately 2 years in continuous immersion in sea water. The interrogating frequencies for receiving are 10.0, 10.5, 11.0 and 12 KHz with any one of four frequencies internally switch selected. The receiving threshold is between 0 db/ microbar to  $-20$  db/ microbar at all selected frequencies with provisions for internal sensitivity adjustment. The receiving bandwidth is  $\pm 200$  Hz with the exception of the 12 KHz mode which is  $\pm 500$  Hz, with a rejection of 20 db/octave outside the pass band. The response pattern is omnidirectional  $\pm 3$  db in the horizontal (right angles to access). Vertical Lobe is minimum of  $40^{\circ}$  beam width (3db down points). Lead Titante Zircoante is the active element. The transmitter characteristics have a frequency of 12 KHz with source levels at a minimum of 90 db/microbar at 1 yard keying is accomplished by receiver after integrating at the threshold receiving levels. Minimum pulse length is four milliseconds; dead time is 2.2 seconds after transmitting. The time delay between start of reception and interrogation of transmission is 2 milliseconds.

Note: The XPD-1 has undergone testing by U. S. Navy Electronics Laboratory.

Write or call Alden (617) 366-447 or Ocean Sonics for further information in detail.

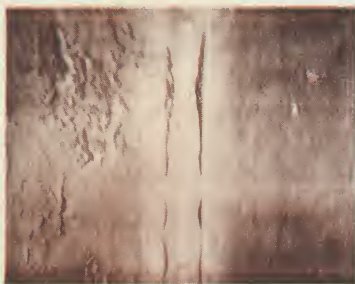


**A L D E N**

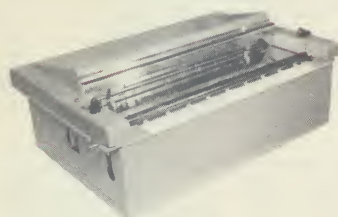
ELECTRONIC

&amp; IMPULSE RECORDING EQUIPMENT CO. INC.

Alden Research Center

WESTBORO, MASS. 01581  
TEL. (617) 366-4467**INSTRUMENT DATA SHEET****OCEANOGRAPHY**

OBSS Record



319DA-DC

**COMPONENT RECORDERS**

**ALDEN/ALFAX RECORDING TECHNIQUES** provide unique instant graphic display for "side looking", bottom scanning and vertical positioning sonar systems.

Alden component helix recorders are being utilized in various new oceanographic research projects where real time, hard copy displays are required with recording speeds exceeding 600 in./sec. Because of great flexibility of choice in regard to physical size, printing width, resolution, direction and type of scan, each system can be customized for special requirements. Underwater research vehicles such as **ALVIN**, **TRIESTE**, **DEEP STAR**, and **ALUMINAUT** have employed special Alden recorders.

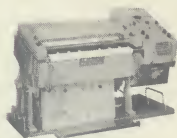
As an outstanding example, Westinghouse's Ocean Bottom Scanning Sonar System employs an Alden dual channel component helix recorder, with each channel scan starting in the center of the chart and proceeding to left and right out to chart margin. This unit provides a "plan view" of the ocean bottom with further enhancement by designing the scan angle of the transducer into a non-linear resilient helix to give a linear display. (Resolutions from 6' to 6" are obtainable.) The Alfax recording at left illustrates the readout obtained with the OBSS System. Alfax sensitive recording papers match the writing speed requirements of these systems and, in addition to providing an "X, Y" readout, have the broad dynamic tone shade response which gives the observer his "Z" data in the high fidelity of the Alfax tonal scale. **Alden Catalog No. 319DA-DC**, is available for those desiring to add "side looking" or "vertical positioning" to their sonar systems. Each channel has 8" recording width. The unit is complete—external shafts for paper feed and recording helix are provided for attachment of customers own drives. The recorder can be operated at speeds to 20 scans/second.

**RECORDING SYSTEMS**

The **Alden 419 Precision Graphic Recorder** is a dual channel 19" oceanographic display instrument designed to meet technical criteria of the Woods Hole Oceanographic Institution. It is equipped with stereo (dual channel—dependent) electronics for signal processing simultaneously from 2 separate inputs and can correspondingly record and display two separate data channels side-by-side across 19" of recording paper for correlation of the data inputs. In addition, either of the two channels can be isolated and expanded across the full 19" printing width if desired. The 419 PGR has 12 depth rates from 3000 to 20 fathoms, 5 chart advance rates from 32 to 384 lines per inch for variable resolution/integration, automatic and manual programming for each channel of any one discrete interval in up to 12 intervals.



419 PGR

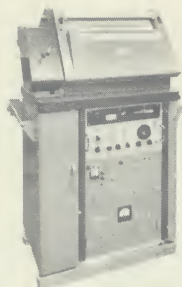


418 PSGR

The **418 Precision Survey Graphic Recorder** was designed and developed to operate with existing echo sounding systems which may already be aboard. The 418 PSGR is a 19" transistorized acoustic graphic recorder having alternate use (with the Alden 421B facsimile converter) as radio weather chart recorder operating at either 60 or 120 rpm and index of cooperation of 576 (CCIR). The 6 depth rates are 100 to 4000 fathoms. The recorder features manual depth interval selection (gating), five chart advance rates from 32 to 384 lines per inch, digital chronometer for precise time reference, photo/optical scale line generation and "push to mark" event marker.

**GRAPHIC COMMUNICATIONS OR WEATHER CHART RECEPTION**

The **519 Series Marine Radio Facsimile Recorder**, with a simple switch selection, operates at 3 recording speeds (60, 90, 120 scans/min.), with two chart advance rates of 48 and 96 lines per inch. This capability enables you to record weather data transmitted from any radio facsimile station in the world. The recorder automatically starts and stops upon receipt of 300 cycle "start" and 450 cycles "stop" tone and phases automatically. Manual controls are also provided. The input signal of 1800 to 2400 cycle AM into 600 ohms is compatible with all HF radios/converters. If existing radio equipment is not available, then the Alden 519 Series can be provided with receiver/converter as a self contained unit.



519



9165-D-M

The **Alden 19" Flat Copy Scanner 9165-D-M** is the Marine version of the standard Alden unit which is used for the continuous transmission of weather chart graphics by the U. S. Weather Bureau and U. S. Navy. With this scanner on board ship, the oceanographer, scientist or captain may transmit, via radio, any type of graphic material to compatible facsimile receivers located ashore or aboard other ships. Such graphic material can consist of echo soundings, instrument charts from bathythermographs and magnetometer, navigational charts etc.—any graphics of any size. The scanner operates at 60, 90, 120 scans/min. two chart advance rates—48/96 lines per inch and sends out control signals to start, synchronize and stop Alden facsimile recorders automatically at remote locations via radio or, if the receiving point is aboard the same ship, then transmission can be made over voice quality internal communications circuits. The method of transmission can be single side band, FSK (frequency shift key). Standard shipboard transmitters/converters can be used or the scanner can be equipped with suitable converter for use with the available transmitter.

**A L D E N**

Write or call Marine Division (617) 366-4467

# OCEANOGRAPHIC REPLY CARD

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_ TEL. \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_

ALDEN

OCEAN SONICS

- |  |   |
|--|---|
| <input type="checkbox"/> 419 PRECISION GRAPHIC RECORDER        | <input type="checkbox"/> OSR-19 (19" SERIES)  |
| <input type="checkbox"/> 418 PRECISION SURVEY GRAPHIC RECORDER | <input type="checkbox"/> OSR-19T (TRANSCIVER) |
| <input type="checkbox"/> 418 PSGR / WEATHER MAP                | <input type="checkbox"/> OSR-11 (11" SERIES)  |
| <input type="checkbox"/> 519 MARINE WEATHER<br>MAP RECORDER    | <input type="checkbox"/> XPD-1 (TRANSPONDER)  |

☐ SPECIAL REQUIREMENTS \_\_\_\_\_

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> IMMEDIATE REQUIREMENT | <input type="checkbox"/> SEND DELIVERY DATE & PRICE |
| <input type="checkbox"/> FUTURE REQUIREMENT               | <input type="checkbox"/> GENERAL INFORMATION ONLY   |
| <input type="checkbox"/> ADD TO MAILING LIST              | <input type="checkbox"/> ATTEND ALDEN SEMINAR       |

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WESTBORO  
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**BUSINESS REPLY MAIL**  
NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

POSTAGE WILL BE PAID BY:

**ALDEN ELECTRONIC AND IMPULSE RECORDING EQUIPMENT COMPANY INC.**

MARINE DIVISION

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